



**SiC Schottky Diode  
Full Bridge Power Module**

$V_{RRM}=1,200V$   
 $I_F=50A@T_c=135^{\circ}C$

**Features**

- Zero reverse recovery
- Zero forward recovery
- Temperature-independent switching behavior
- Positive temperature coefficient on VF
- Very low stray inductance
- High level of integration

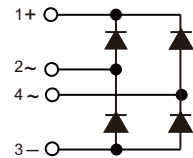
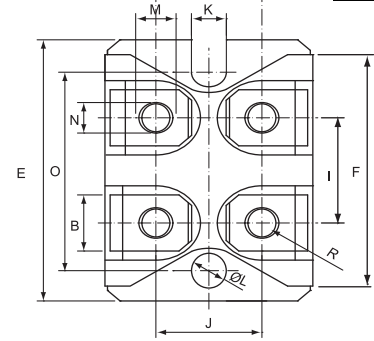
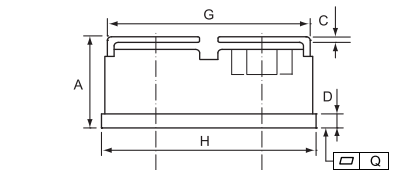
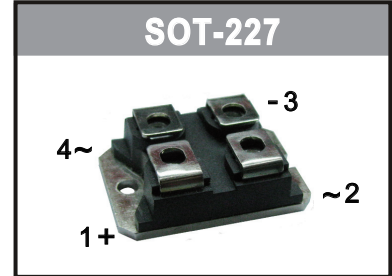
Preliminary

**Benefits**

- Outstanding performance at high-frequency operation
- Direct mounting to heatsink (isolated package)
- Low junction-to-case thermal resistance
- RoHS compliant

**Applications**

- Switch mode power supplies rectifier
- Induction heating
- Welding equipment
- High-speed rectifiers



**Maximum Ratings**

Part Number	Maximum Recurrent Peak Reverse Voltage	Maximum DC Blocking Voltage
CSRI4×50-120L1B	1200V	1200V

Maximum Rating	Symbol	Conditions	Value	Unit
Continuous forward current (per diode)	$I_F$	$T_c=25^{\circ}C$	120	A
		$T_c=125^{\circ}C$	60	
		$T_c=135^{\circ}C$	50	
Non-repetitive peak forward surge current (per diode)	$I_{FSM}$	$T_c=25^{\circ}C, t_p=8.3ms$ half sine wave	400	A
		$T_c=150^{\circ}C, t_p=8.3ms$ half sine wave	250	
		$T_c=25^{\circ}C, t_p=10\mu s$ pulse	1600	
Repetitive peak forward surge current (per diode)	$I_{FRM}$	$T_c=25^{\circ}C, t_p=10ms$ half sine wave, $D=0.1$	320	A
		$T_c=125^{\circ}C, t_p=10ms$ half sine wave, $D=0.1$	176	
DC blocking voltage	$V_R$	$T_j=25^{\circ}C$	1200	V
Repetitive peak reverse voltage	$V_{RRM}$	$T_j=25^{\circ}C$	1200	V
Isolation voltage	$V_{iso}$	50/60Hz, RMS $I_{ISOL} \leq 1mA$	2500	V
Operating junction and storage temperature	$T_j$		175	$^{\circ}C$
	$T_{stg}$		-55 to 175	
Mounting torque		To heatsink	1.5	Nm
		To terminal	1.3	

	DIMENSIONS			
	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.460	0.483	11.68	12.28
B	0.307	0.323	7.80	8.20
C	0.030	0.033	0.75	0.85
D	0.071	0.081	1.80	2.05
E	1.488	1.504	37.80	38.20
F	1.248	1.260	31.70	32.00
G	0.917	0.957	23.30	24.30
H	0.996	1.008	25.30	25.60
I	0.579	0.602	14.70	15.30
J	0.492	0.516	12.50	13.10
K	0.161	0.169	4.10	4.30
L	0.161	0.169	4.10	4.30
M	0.181	0.197	4.60	5.00
N	0.165	0.181	4.20	4.60
O	1.181	1.197	30.00	30.40
Q	-0.002	0.004	-0.05	0.10
R	M4*8			



Electrical Characteristics, at Tj=25 °C, unless otherwise specified. (per diode)

Static Characteristics	Symbol	Conditions	Values			Unit
			min.	typ.	max.	
DC blocking voltage	V <sub>DC</sub>		1,200	-	-	V
Diode forward voltage	V <sub>F</sub>	I <sub>F</sub> = 50A, T <sub>j</sub> = 25 °C	-	1.6	1.8	V
		I <sub>F</sub> = 50A, T <sub>j</sub> = 175 °C	-	2.4	2.9	
Reverse current	I <sub>R</sub>	V <sub>R</sub> = 1,200V, T <sub>j</sub> = 25 °C	-	30	60	μA
		V <sub>R</sub> = 1,200V, T <sub>j</sub> = 175 °C	-	60	250	

AC Characteristics (per diode)

Static Characteristics	Symbol	Conditions	Values			Unit
			min.	typ.	max.	
Total capacitive charge	Q <sub>rr</sub>	V <sub>R</sub> = 800V, T <sub>j</sub> = 25 °C	-	114.5	-	nC
Total capacitance	C	V <sub>R</sub> = 0V, f = 1 MHz T <sub>j</sub> = 25 °C	-	2,500	-	pF
		V <sub>R</sub> = 400V, f = 1 MHz T <sub>j</sub> = 25 °C	-	244	-	
		V <sub>R</sub> = 800V, f = 1 MHz T <sub>j</sub> = 25 °C	-	170	-	

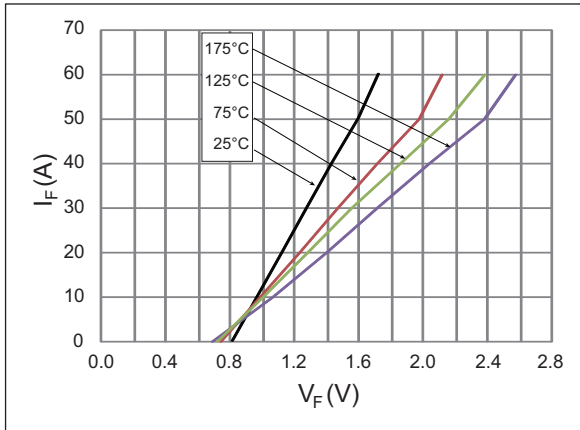
Thermal Characteristics (per diode)

Static Characteristics	Symbol	Values	Unit
		typ.	
Thermal resistance from junction to case	R <sub>θJC</sub>	0.28	°C/W

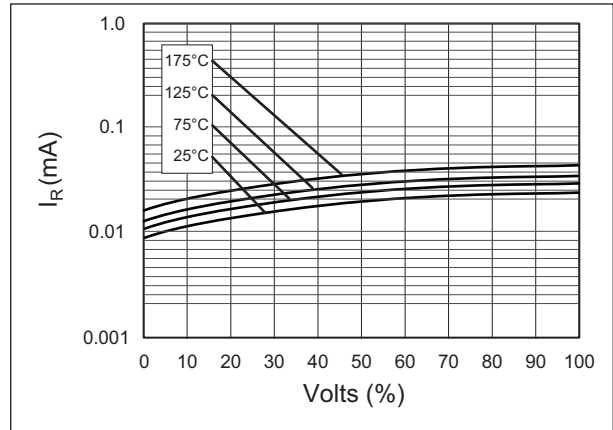


Typical Performance

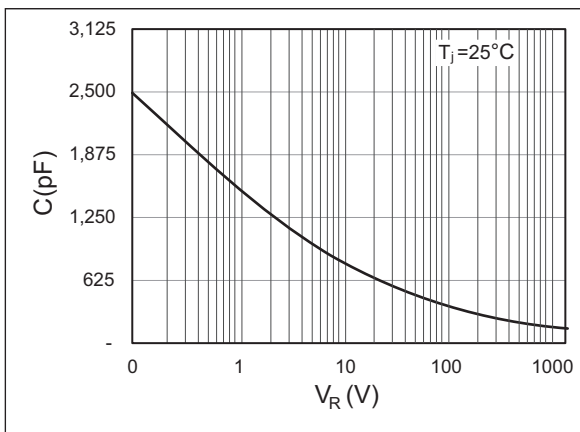
Forward Characteristics (parameterized on  $T_j$ )



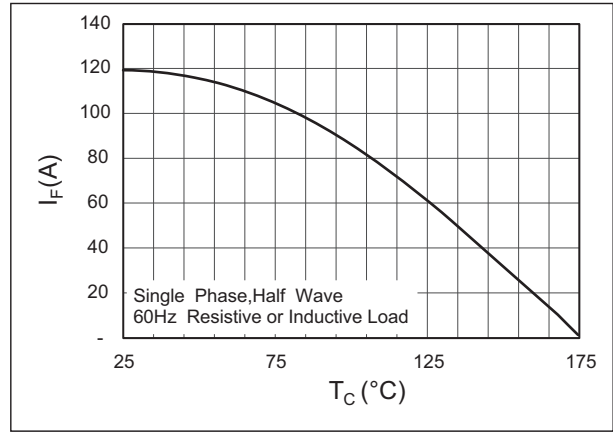
Reverse Characteristics (parameterized on  $T_j$ )



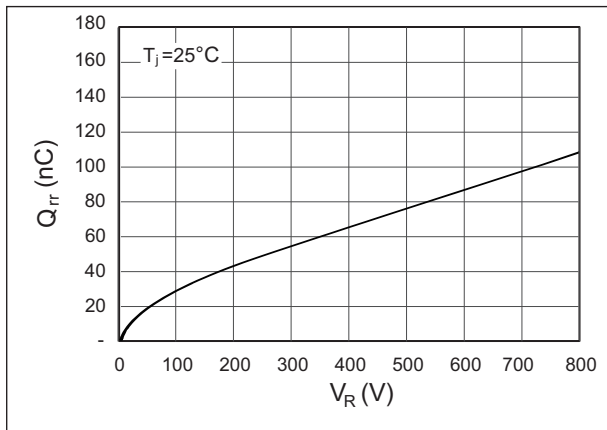
Capacitance



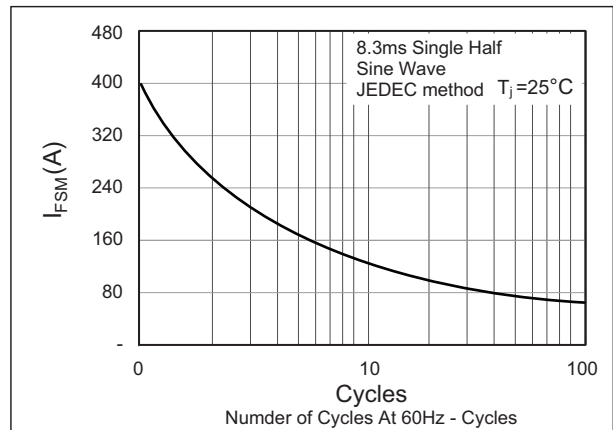
Current Derating



Recovery Charge



Forward Surge Current





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